

Results of Structural Testing for FCS Common Chassis Prototype Concept

14th Annual GVSS

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Briefing Outline

- Program Description
- Conclusions
- Recommendations/Path Forward
- FCS benefits

The TARDEC logo is positioned at the bottom of the slide. It is rendered in a large, blue, three-dimensional, sans-serif font. To the left of the logo, there is a blue swoosh graphic that curves upwards and to the right, ending near the first letter of the logo. The background of the slide is a dark gray with a subtle grid pattern.

Program Description



BEAM TESTING

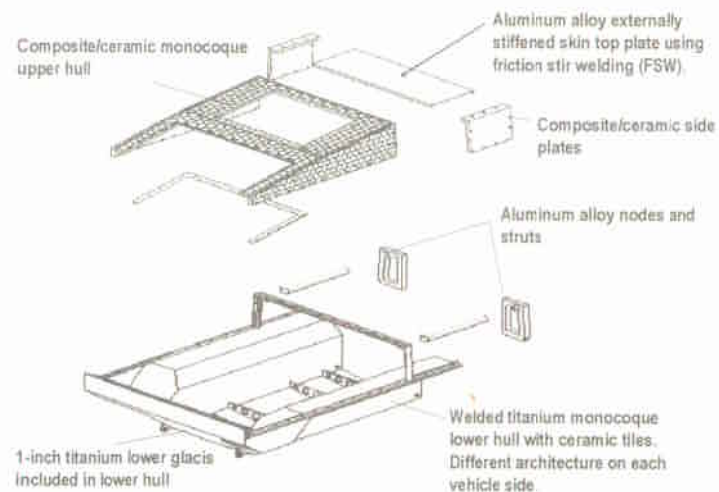
SYSTEM TESTING

CORRELATION

MODELING &
SIMULATION
(M&S)

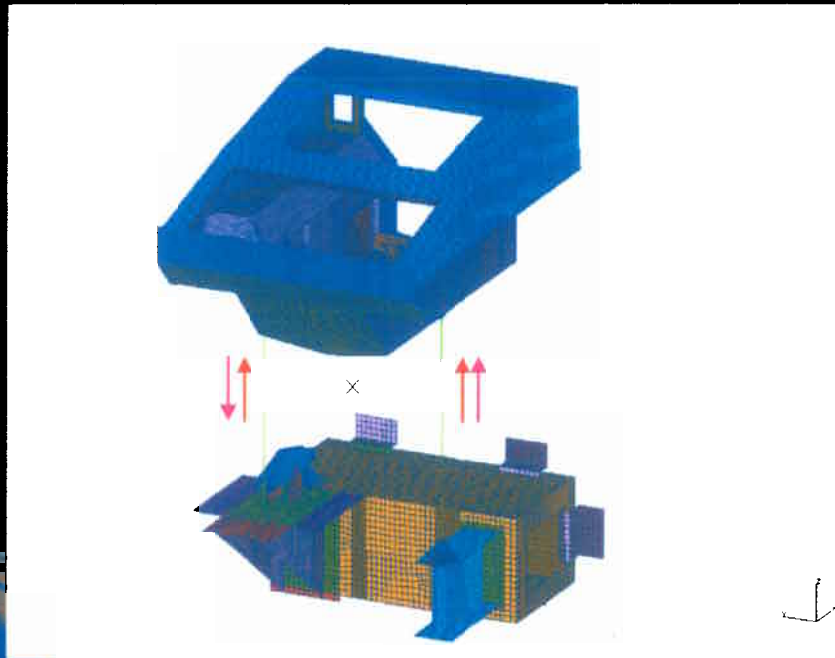
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X-2 Test Structure

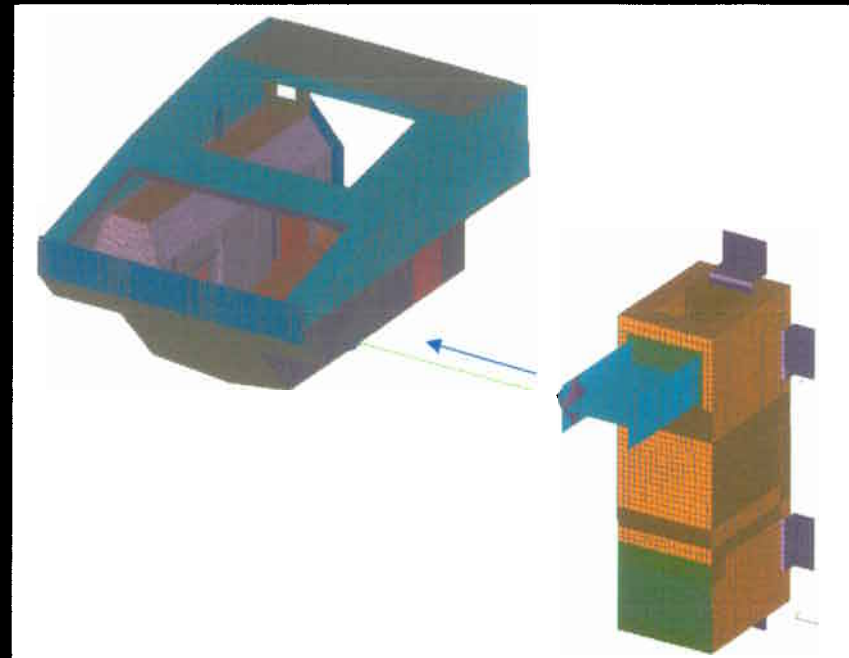


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Structural Tests Performed



Racking/Vertical



Horizontal

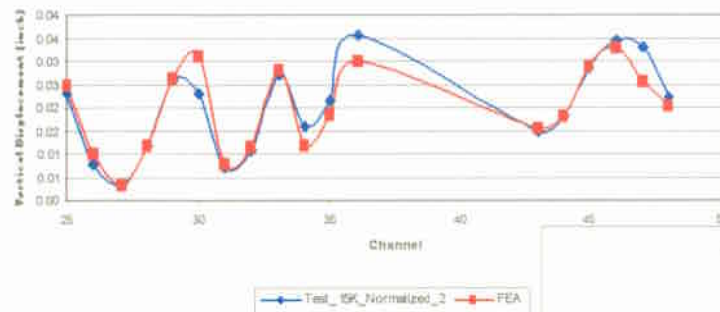
Maximum test loads were considered most severe

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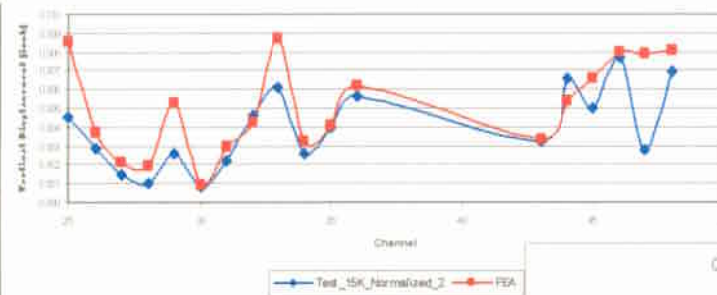
Conclusions

- Correlation was successful

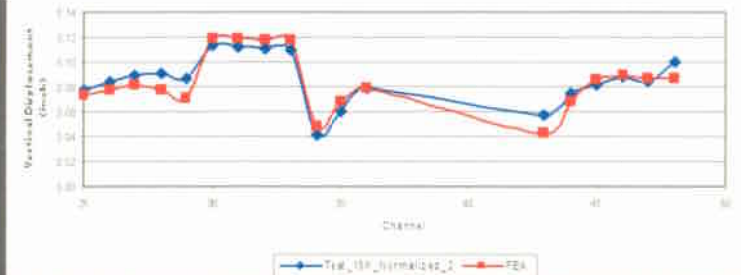
Correlation Between FEA & Racking Load Test
15K_Normalized_2nd_Set vs. FEA



Correlation Between FEA & Lateral Load Test
15K_Normalized_2nd_Set vs. FEA



Correlation Between FEA & Vertical Load Test
15K_Normalized_2nd_Set vs. FEA



- Still issues of concern



Conclusions (cont')

- Vehicle testing was successful
 - Structure withstood loads
 - Overall vehicle structure was still linear and elastic
 - Local failures occurred

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Recommendations

- More materials testing
 - Developmental tests needed for better characterization
- Further racking tests
 - Stiffen support structure
- Build/Test different structures
 - Space-frame structure

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Benefits to FCS

- Helps validate state of M&S technology on a vehicle hull structure
 - Tells the level of reliability that can be anticipated
- Testers working with Analyzers
 - Data exchange protocols can be established and refined

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More Information

- Hodges, Bogetti, Meldrum, and Smith, *"FCS X-2 TEST SECTION: FINAL REPORT"*, TARDEC, 2004
- For report information please contact:

Scott E. Hodges

RDECOM-TARDEC

(586) 574-8709

hodgess@tacom.army.mil

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